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TW  
PATENT  
Attorney Docket No. 440561/PALL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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1-29-03

JAN 27 2003

TC 1700

In re Application of:

STEVENS et al.

Group Art Unit: 1723

Application No. 10/069,935

Examiner: Unassigned

Filed: June 28, 2002

For: WATER TREATMENT SYSTEMS AND  
METHODS

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
Washington, D.C. 20231

Pursuant to 37 CFR 1.97 and 1.98, the references listed on the enclosed Form PTO-1449 and/or Substitute Form PTO-1449 ("Form 1449") are submitted for consideration by the Examiner in the examination of the above-identified patent application.

The full consideration of the references in their entirety by the Examiner is respectfully requested and encouraged. Also, it is respectfully requested that the references be entered into the record of the present application and that the Examiner place his or her initials in the appropriate area on the enclosed Form 1449, thereby indicating the Examiner's consideration of each of the references.

The submission of the references listed on the Form 1449 is for the purpose of providing a complete record and is not a concession that the references listed thereon are prior art to the invention claimed in the patent application. The right is expressly reserved to establish an invention date earlier than the above-identified filing date in order to remove any reference submitted herewith as prior art should it be deemed appropriate to do so.

Further, the submission of the references is not to be taken as a concession that any reference represents art that is relevant or analogous to the claimed invention. Accordingly, the right to argue that any reference is not properly within the scope of prior art relevant to an examination of the claims in the above-identified application is also expressly reserved.

The Information Disclosure Statement is being filed:

- ☒ **within** any one of the following time periods: (a) within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d); (b) within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 of an international application; (c) before the mailing date of a first Office Action on the merits; or (d) before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

- ☐ **after** (a), (b), (c) or (d) above, but before the mailing date of a final action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and includes *one* of:
- ☐ the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below).
- or*
- ☐ the fee of \$180 set forth in 37 CFR 1.17(p) (see "Fees" below).
- ☐ **after** the mailing date of a final action under 37 CFR 1.113 or a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and on or before payment of the issue fee, and includes the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).
- ☐ **after** the mailing date of a Notice of Allowance under 37 CFR 1.311, and on or before payment of the issue fee, and **within** thirty days of receiving each item of information contained in the Information Disclosure Statement, and includes the Statement under 37 CFR 1.704(d) (see "Statement under 37 CFR 1.704(d)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).

NOTE: This is for original applications except applications for a design patent, filed on or after May 29, 2000, wherein a paper containing only an Information Disclosure Statement in compliance with 37 CFR 1.97 and 1.98 is being filed.

#### Copies of the References

- ☒ Copies of the references listed on the enclosed Form 1449 are enclosed herewith. Attached to each reference not in the English language is a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3). An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3).
- ☒ A copy of the foreign search report is enclosed herewith.
- ☐ The references listed on the enclosed Form 1449 were previously identified in the parent application(s) of the present application, and copies of the references were furnished at that time. Accordingly, additional copies of the references are not submitted herewith, so as not to burden the file with duplicate copies of references. The Examiner is respectfully requested to carefully review the references in accordance with the requirements set out in the Manual of Patent Examining Procedure. In accordance with 37 CFR 1.98(d), the details of the parent application(s) relied upon for an earlier filing date under 35 USC 120 in which copies of the references were previously furnished are set out below:

U.S. APPLICATIONS		Status ( <i>check one</i> )		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1.				
2.				
3.				

**Statement under 37 CFR 1.97(e)**

- ☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.
- ☐ The **undersigned** hereby states that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

**Statement under 37 CFR 1.704(d)**

- ☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

**Fees**

- ☒ No fee is owed by the applicant(s).
- ☐ The **IDS Fee of \$180** under 37 CFR 1.17(p) is enclosed herewith.

**Method of Payment of Fees**

- ☐ Attached is a check in the amount of \$ .
- ☐ Charge Deposit Account No. 12-1216 in the amount of \$ . (A duplicate copy of this communication is enclosed for that purpose.)

**Authorization to Charge Additional Fees**

- ☒ If any additional fees are owed in connection with this communication, please charge Deposit Account No. 12-1216. (A duplicate copy of this communication is enclosed for that purpose.)

In re Appln. of Stevens et al.  
Application No. 10/069,935

**Instructions as to Overpayment**

☒ Credit Account No. 12-1216.  
☐ Refund

Respectfully submitted,

*Leah Robinson*

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Date: 1/24/03  
LCO:ves

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*Substitute for form 1449A/B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	10/069,935
				Filing Date	June 28, 2002
				First Named Inventor	STEVENS
				Group Art Unit	1723
				Examiner Name	Unassigned
Sheet	1	of	6	Attorney Docket Number	440561/PALL

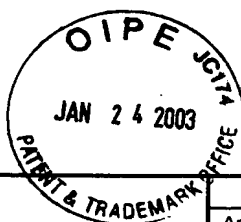
U.S. PATENT DOCUMENTS						
Examiner Initials	Doc. No.	U.S. Patent Document		Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
		Application or Patent Number	Kind Code			
	1	2,072,416		Berndt et al.	3/2/37	
	2	2,072,417		Berndt et al.	3/2/37	
	3	2,482,507		Rentschler et al.	9/20/49	
	4	2,930,706		Moulton	3/29/60	
	5	3,067,115		Clingman, Jr.	12/4/62	
	6	3,814,680		Wood	6/4/74	
	7	3,817,703		Atwood	6/18/74	
	8	3,846,072		Patterson	11/5/74	
	9	3,929,671		Nakamura et al.	12/30/75	
	10	3,934,044		Busch et al.	1/20/76	
	11	3,955,921		Tensmeyer	5/11/76	
	12	3,994,686		Rauser et al.	11/30/76	
	13	4,028,246		Lund et al.	6/7/77	
	14	4,035,981		Braun et al.	7/19/77	
	15	4,042,325		Tensmeyer	8/16/77	
	16	4,072,596		Moeglich	2/7/78	
	17	4,265,747		Copa et al.	5/5/81	
	18	4,304,996		Blades	12/8/81	
	19	4,327,276		Injushin et al.	4/27/82	
	20	4,346,131		Yoldas	8/24/82	
	21	4,390,432		Takeguchi et al.	6/28/83	
	22	4,391,080		Brody et al.	7/5/83	
	23	4,396,582		Kodera	8/2/83	
	24	4,424,188		DiGeronimo	1/3/84	
	25	4,437,954		Sammells et al.	3/20/84	
	26	4,446,236		Clyde	5/1/84	
	27	4,464,336		Hiramoto	8/7/84	
	28	4,494,357		DiGeronimo	1/22/85	
	29	4,534,282		Marinoza	8/13/85	
	30	4,535,247		Kurtz	8/13/85	
	31	4,585,533		Habeeb	4/29/86	
	32	4,601,822		Zamburro	7/22/86	
	33	4,615,799		Mortensen	10/7/86	
	34	4,650,554		Gordon	3/17/87	
	35	4,659,443		Byker	4/21/87	
	36	4,661,264		Goudy, Jr.	4/28/87	
	37	4,694,179		Lew et al.	9/15/87	
	38	4,766,321		Lew et al.	8/23/88	
	39	4,769,131		Noll et al.	9/6/88	
	40	4,800,090		August	1/24/89	

Examiner Signature		Date Considered	
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\* A concise statement of relevance is being submitted in lieu of a translation. 37 CFR 1.98(a)(3).

+ An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of relevance under 37 CFR 1.98(a)(3).

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 6

**Complete if Known**

Application Number.	10/069,935
Filing Date	June 28, 2003
First Named Inventor	STEVENS
Group Art Unit	1723
Examiner Name	Unassigned
Attorney Docket Number	440561/PALL

U.S. PATENT DOCUMENTS						
Examiner Initials	Doc. No.	U.S. Patent Document		Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
		Application or Patent Number	Kind Code			
	41	4,861,484		Lichtin et al.	8/29/89	
	42	4,871,559		Dunn et al.	10/3/89	
	43	4,892,712		Robertson et al.	1/9/90	
	44	4,902,411		Lin	2/20/90	
	45	4,904,874		Ellner	2/27/90	
	46	4,910,942		Dunn et al.	3/27/90	
	47	4,966,759		Robertson et al.	10/30/90	
	48	4,968,891		Jhawar et al.	11/6/90	
	49	4,983,411		Tanaka et al.	1/8/91	
	50	5,032,241		Robertson et al.	7/16/91	
	51	5,035,235		Chesky	7/30/91	
	52	5,035,784		Anderson et al.	7/30/91	
	53	5,037,618		Hager	8/6/91	
	54	5,053,143		Miller et al.	10/1/91	
	55	5,120,450		Stanley, Jr.	6/9/92	
	56	5,137,607		Anderson et al.	8/11/92	
	57	5,141,636		Flanagan et al.	8/25/92	
	58	5,144,146		Wekhof	9/1/92	
	59	5,151,252		Mass	9/29/92	
	60	5,190,659		Wang et al.	3/2/93	
	61	5,208,461		Tipton	5/4/93	
	62	5,256,299		Wang et al.	10/26/93	
	63	5,266,215		Engelhard	11/30/93	
	64	5,302,356		Shadman et al.	4/12/94	
	65	5,330,722		Pick et al.	7/19/94	
	66	5,364,645		Lagunas-Solar et al.	11/15/94	
	67	5,374,356		Miller et al.	12/20/94	
	68	5,376,281		Safta	12/27/94	
	69	5,433,738		Stinson	7/18/95	
	70	5,466,425		Adams	11/14/95	
	71	5,494,585		Cox	2/27/96	
	72	5,543,047		Stoyell et al.	8/6/96	
	73	5,607,711		Lagunas-Solar	3/4/97	
	74	5,616,532		Heller et al.	4/1/97	
	75	5,626,752		Mohn et al.	5/6/97	
	76	5,626,768		Ressler et al.	5/6/97	
	77	5,653,877		Mark	8/5/97	
	78	5,658,530		Dunn	8/19/97	
	79	5,679,257		Coate et al.	10/21/97	
	80	5,685,994		Johnson	11/11/97	

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First Named Inventor STEVENS  
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Examiner Name Unassigned  
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## **U.S. PATENT DOCUMENTS**

Examiner Initials	Doc. No.	U.S. Patent Document		Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
		Application or Patent Number	Kind Code			
	81	5,711,887		Gastman et al.	1/27/98	
	82	5,736,055		Cooper	4/7/98	
	83	5,787,537		Mannillo	8/4/98	
	84	5,789,755		Bender	8/4/98	
	85	5,790,934		Say et al.	8/4/98	
	86	5,807,486		Busch, Jr.	9/15/98	
	87	5,885,274		Fullmer et al.	3/23/99	
	88	5,900,211		Dunn et al.	5/4/99	
	89	6,113,787		Czermak et al.	9/5/00	

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## **FOREIGN PATENT DOCUMENTS**

Examiner Initials	Doc. No.	Foreign Patent Document			Name of Patentee or Applicant	Date of Publication	Translation	
		Office	Application or Patent Number	Kind Code			Yes	No**
	90	DE	196 14 214		Herhof Umwelttechnik G96mbH	10/16/97		X+
	91	DE	197 53 386		Shang Jianming Dr. Ing.	6/10/99		X+
	92	DE	263449		Ittner	9/24/12	X	
	93	EP	306 301		Henderson	3/8/89		
	94	EP	288 746		Hüls Aktiengesellschaft	11/2/88	X	
	95	EP	313 409		Duthie, Jr.	4/26/89		
	96	JP	60-102157		Myojyo Foods K.K.	6/6/85	X	
	97	JP	60-118289		Giken Kogyo K.K.	6/25/85	X	
	98	JP	61-97102		Nippon Ita Garasu K.K.	5/15/86	X	
	99	NL	7502834		AB Ziristor	9/15/75	X	
	100	UK	521,189		Hommel	10/11/39		
	101	UK	1,052,513		Edgerton, Germeshausen & Grier	12/21/66		
	102	UK	1346521		Multiblitz DR. Ing. D.A. Mannesmann GmbH & Co.	2/13/74		
	103	UK	1 448 411		Electricity Council	9/8/76		
	104	UK	1 548 997		Dentsply Intl. Inc.	7/25/79		
	105	UK	2 047 565		Asahi-Dow Ltd.	12/3/80		
	106	UK	1 581 998		Applied Photophysics Ltd.	12/31/80		

Examiner Signature

Date Considered

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Sheet 4 of 6

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### OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation	
			Yes	No**
	107	"6.0 Ultraviolet (UV) Disinfection," Final Report, West Basin WRP Expansion No. 2 Study, pp. 53-59.		
	108	"ACPOP - Nutech's Organic Pollutant Treatment" (2 pages).		
	109	"Biofouling," Water (Industrial), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 520-523.		
	110	"Industrial Water Treatment," Water (Industrial), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 487-498.		
	111	"Membrane Separation Processes," Water (Supply and Desalination), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 470-478.		
	112	"Microza LGV Series: Ultrafiltration Modules," Pall Corporation, © 1995 (6 pages).		
	113	"Municipal," Water (Municipal), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 526-539.		
	114	"Organic Materials," Water (Analysis), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 432-437.		
	115	"Protect Your Water," Sterlight Inc. (4 pages).		
	116	"PureBright PBW-250 UHP Water Treatment Product Features," PurePulse Technologies (1 page).		
	117	"Reuse," Water (Reuse), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 561-569.		
	118	"Riptide 8," Pulsar Environmental Remediation Technologies, Inc., ©1998, 1999, (1 page).		
	119	"Riptide Products," Pulsar Environmental Remediation Technologies, Inc., ©1998, 1999, (7 pages).		
	120	"Sewage," Water (Sewage), Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 540-560.		
	121	"The PureBright® Process," Purepulse Technologies, Inc., pp. 1-9		
	122	"Using Photocatalysts, Japanese Firm Develops Antibacterial Tiles and Sanitary Ware," (2 pages).		
	123	"Wastes, Industrial," Wastes Industrial, Kirk-Othmer Encyclopedia of Chemical Technology, 4 <sup>th</sup> Ed., 1998, vol. 25, pp. 325-361.		
	124	"Welcome to the Pulsar Website!", Pulsar Environmental Remediation Technologies, Inc., ©1998, 1999, (2 pages).		
	125	Bender, James B., "Photolytic Oxidation of Contaminated Water Using the RipTide Water Purification System," Pulsar Environmental Remediation Technologies, Inc., ©1998, 1998, pp. 1-26.		
	126	Bolton, James R., "Ultraviolet Applications Handbook," Bolton Photosciences Inc., ©1999, pp. 1-28.		

Examiner Signature		Date Considered	
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\* A concise statement of relevance is being submitted in lieu of a translation. 37 CFR 1.98(a)(3).

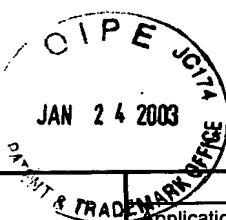
+ An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of relevance under 37 CFR 1.98(a)(3).



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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Filing Date	June 28, 2001
				First Named Inventor	STEVENS
				Group Art Unit	1723
				Examiner Name	Unassigned
(Use as many sheets as necessary)				Attorney Docket Number	440561/PALL
Sheet	5	of	6		

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**OTHER - NON PATENT LITERATURE DOCUMENTS**

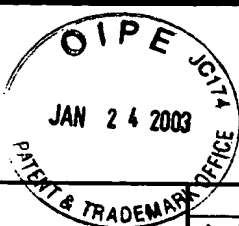
Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation	
			Yes	No**
	127	Brinker et al., "Sol-Gel Derived Antireflective Coatings for Silicon," Solar Energy Materials, 5, 1981, pp. 159-172.		
	128	Carey et al., "Photodechlorination of PCB's in the Presence of Titanium Dioxide in Aqueous Suspensions," Bulletin of Environmental Contamination & Toxicology, Vol. 16, No. 6, 1976, pp. 697-701.		
	129	Fan, et al., "Integrated Chemical Systems: Photocatalysis at TiO <sub>2</sub> Incorporated into Nafion and Clay," J. Phys.Chem., 1985, 89, pp. 4418-4420.		
	130	Glaskin, Max, "Kill the Bugs to Cure the Building," New Scientist, Technology, March 11, 1995.		
	131	Hsiao et al., "Heterogeneous Photocatalysis: Degradation of Dilute Solutions of Dichloromethane (CH <sub>2</sub> Cl <sub>2</sub> ), Chloroform (CHCl <sub>3</sub> ), and Carbon Tetrachloride (CCl <sub>4</sub> ) with Illuminated TiO <sub>2</sub> Photocatalyst," Journal of Catalysis, 1983, 82, pp. 418-423.		
	132	Ireland et al., "Inactivation of <i>Escherichia coli</i> by Titanium Dioxide Photocatalytic Oxidation," Applied and Environmental Microbiology, May 1993, Vol. 59, No. 5, pp. 1668-1670.		
	133	Johnson, Tom, "Flashblast - the light that cleans," Popular Science, July 1982, pp. 82-84.		
	134	Mallevalle et al., "Configuration," Water Treatment Membrane Processes, pp. 9.4-9.5.		
	135	Mallevalle et al., "System Design," Water Treatment Membrane Processes, pp. 1.21-2.24.		
	136	Marshall, Tom, "Deadly Pulses," Water Environment & Technology, April 1999, pp. 37-41.		
	137	Marshall, Tom, "Emerging UV Disinfection Technology - Pulsed UV (PUV)," Water Environment & Technology, April 1999, (9 pages).		
	138	Matthews, Ralph W., "Carbon Dioxide Formation from Organic Solutes in Aqueous Suspensions of Ultraviolet-Irradiated TiO <sub>2</sub> . Effect of Solute Concentration," Aust. J. Chem., 1987, 40, pp. 667-75.		
	139	Matthews, Ralph W., "Hydroxylation Reactions Induced by Near-ultraviolet Photolysis of Aqueous Titanium Dioxide Suspensions," J. Chem. Soc., Faraday Trans. 1, 1984, 80, pp. 457-471.		
	140	Matthews, Ralph W., "Photooxidation of Organic Impurities in Water Using Thin Films of Titanium Dioxide," J. Phys. Chem., 1987, 91, pp. 3328-3333.		
	141	Matthews, Ralph W., "Photo-Oxidation of Organic Material in Aqueous Suspensions of Titanium Dioxide," 1986, Vol. 20, No. 5, pp. 569-578.		
	142	Matthews, Ralph W., "Solar-Electric Water Purification Using Photocatalytic Oxidation with TiO <sub>2</sub> as a Stationary Phase," Solar Energy, 1987, Vol. 38, No. 6, pp. 405-413.		
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Examiner Signature		Date Considered	
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\* A concise statement of relevance is being submitted in lieu of a translation. 37 CFR 1.98(a)(3).

+ An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of relevance under 37 CFR 1.98(a)(3).

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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**First Named Inventor**

STEVENS

### Group Art Unit

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Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.

Translation	
Yes	No**

Yes

 $\text{No}^{*+}$ 

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